

# HEATH Fall FLYER



# New 1955 HEATHKIT ENGINEERING FEATURES

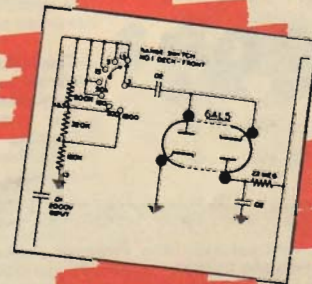
## New PRINTED CIRCUITS

One of the many tremendous improvements in the new 1955 Heathkits is the use of an etched metal process printed circuit board. Printed circuits will be used in Heathkits whenever they will affect construction simplification, performance stabilization, and lend themselves to instrument design. Now for the first time a kit instrument company offers the advantages of modern printed circuit instrument construction technique. For the first time consideration has been given toward reducing kit assembly time. Also this is the first time that printed circuit boards have been hand soldered on a volume basis. Offered only by Heathkit, the pioneer and leader in kit instrument design.



## New PEAK-TO-PEAK VTVM CIRCUIT

New 6AL5 full wave rectifier in AC input circuit permits full scale peak-to-peak measurements. Seven ranges — upper limits 4000 volts peak-to-peak. Just the thing you TV servicemen have needed in making TV circuit voltage checks. Precision resistor voltage divider limits AC RMS level to 150 volts. Prevents overloading the rectifier—extends upper limit AC RMS ranges to 1500 volts—further protects meter and circuitry against AC flash-over or arcing. Another definite example of continuing Heathkit design leadership in the kit instrument field.



## New HIGH READABILITY PANELS

New 1955 Heathkits feature complete panel redesign. Sharp white lettering applied to the beautiful charcoal gray panels, provide a new high in readability. Lettering is easy-to-read open style and panel calibrations are vividly clear against the pleasing soft gray background. New knobs of exclusive Heathkit design.



## New 3" UTILITY SCOPE

The new 3" Scope is a "natural" for the well rounded line of Heathkit instruments. Small in size, 11 3/4" deep, 6 1/2" wide, 9 1/2" high, yet big in performance. Just think of the value, an Oscilloscope for \$29.50. Brilliant intensity, sharp focusing, wide positioning range. An ideal portable Scope for the TV serviceman—a second shop scope—modulation monitor for you hams (deflection plate terminals in rear of cabinet). Performance to spare for all general scope applications. See specifications on following page.

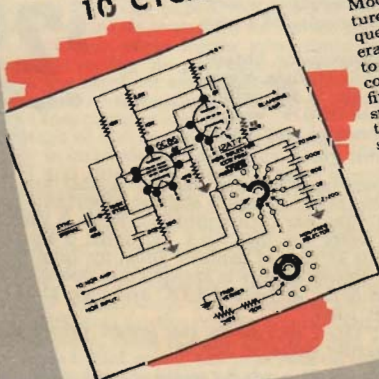


## New STYLING New COLOR

New styling and coloring is responsible for tremendous improvement in Heathkit appearance. The new instrument panel color combination is high definition white lettering in a soft charcoal gray panel. Cabinet color is a lighter feather gray. The satin gold baked enamel cabinet for the WA-P2 Pre-amplifier is further indicative of the modern pacesetting trend in Heathkit styling.



## New SCOPE SWEEP CIRCUIT 10 CYCLES — 500 KC



New 1955 Heathkit Model 0-10 Scope features a new wide frequency range sweep generator covering 10 cycles to 500,000 cycles. This coverage is available in five virtually decade wide sweep ranges and is five times greater than the frequency range sweep usually available. Excellent retrace time characteristics, actually less than 20% at 500 KC. Use of the free running Heath circuit provides a larger margin of stability and a new high in Heathkit Scope performance.

## Continuing PROGRESS FUTURE LINE EXPANSION

The outstanding improvements featured in the 1955 Heathkit line are representative of the progress characterized by Heath Company operation. Long range planning will provide a continuing succession of new kit releases to further expand the Heathkit line which already represents the world's greatest selection of electronic kits. The innovations in the 1955 line, are representative of additional new models scheduled for release for the coming years.



SEE THE INSTRUMENTS  
ON THE FOLLOWING PAGES

HEATH COMPANY • Benton Harbor, Mich.

BRAND *New* LOW PRICED 5" HEATHKIT  
PRINTED CIRCUIT  
OSCILLOSCOPE KIT



MODEL OM-1

**\$39<sup>50</sup>**

Shpg. Wt. 24 lbs.

▶ New Heathkit Model full size 5" scope at pre-war price level.

▶ Modern printed circuit design, easy trouble-free assembly.

▶ Step attenuated frequency compensated vertical input circuit.

▶ Deflection plate connections; spot shape control.

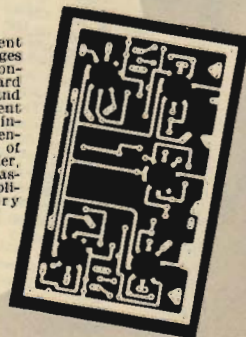
**DESIGN:** A new model, popular priced, full size Heathkit scope. Modern printed circuit design, push-pull deflection amplifiers, 5BP1 CR tube, twin-triode sweep generator and a host of other fine features all at the prewar price level of \$39.50! Just check the unbeatable dollar value represented by these additional features; adjustable spot shape control—RF connections to deflection plates—direct coupled centering controls—external and internal sweep and sync.—60 cycle line sync.—1 volt peak-to-peak panel terminal reference voltage—3 position step attenuated frequency compensated input circuit—new modern, professional appearing cabinet and panel styling.

Tooling and engineering for the printed circuit board alone represents several thousand dollars investment. The only other scopes using printed circuit boards sell for hundreds of dollars. An exclusive kit engineering feature obtainable only in Heathkits.

**SWEEP GENERATOR-POWER SUPPLY:** The new Heathkit designed sweep generator features a twin triode circuit with 4-position switch selected frequency range of 15-100,000 cycles.

Characteristics are: stable locked-in traces—easy, positive synchronization. Printed circuit wiring insures duplication of laboratory pilot model performance. Internal or external sync. or 60 cycle line sync. Convenient 1 volt peak-to-peak reference voltage for making peak-to-peak measurements with plastic calibrated grid furnished with the kit.

The first kit instrument to offer the advantages of printed circuit construction. Circuit board is pre-fabricated and pre-wired. Component placement is clearly indicated by silk screening the reverse side of circuit board. Easier, faster, trouble-free assembly. Assures duplication of laboratory pilot model wiring.



Transformer operated power supply system uses 1V2 and 6X4 rectifiers to supply CR tube accelerating potential and requirements of DC voltage distribution system. Efficient filtering for smooth, trouble-free performance.

**AMPLIFIERS:** Vertical amplifier features step attenuated frequency compensated input circuit with low impedance cathode follower-push-pull deflection amplifier. Sensitivity .09 volts per inch deflection, -6 db at 500 kc. Horizontal amplifier features 3-position input selector switch with cathode follower-push-pull deflection amplifiers. Instrument tube line-up: three 12AU7, one 12AT7 in amplifier circuits. 12AX7 twin triode sweep generator, 6X4 low voltage rectifier, 1V2 high voltage rectifier and 5BP1 CR tube.

Good performance, easy assembly and simplified operation are characteristics of this new Heathkit general purpose oscilloscope.

*New* HEATHKIT 3"  
PRINTED CIRCUIT OSCILLOSCOPE KIT

▶ New modern design printed circuit board for easier, trouble-free assembly.

▶ New Heath twin triode sweep generator circuit 15 — 100,000 cycles.

▶ Convenient deflection plate terminals — ideal for transmitter modulation monitoring.

▶ New compact utility scope; light weight and portable for service work.

**PRINTED CIRCUIT DESIGN:** A new, timely addition to the famous line of Heathkit oscilloscopes. A light weight, compact 3" scope at only \$29.50! An ideal general purpose scope for hams, students and experimenters. This low price places the usefulness of an oscilloscope within the range of electronics enthusiasts with slender pocketbooks. It features modern printed circuit design for easy, trouble-free assembly—miniature tubes—transformer operated power supply and direct RF connections to the deflection plates. Just the type of instrument you budget-minded hams have been looking for to check your transmitter modulation.

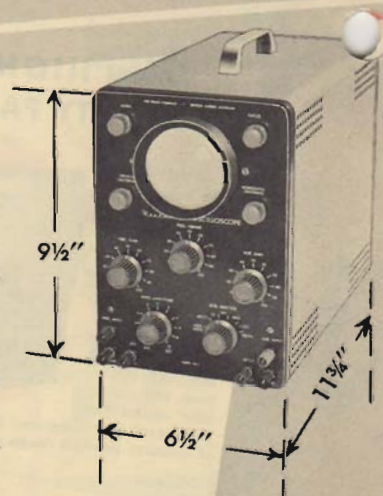
Ideal for portable TV service work or as a "second" shop scope. Students can construct this instrument, obtain first-hand knowledge of scope operating principles and investigate wave forms encountered in their studies. Even you part-time experimenters, audio fans and electronics enthusiasts can now justify your investment in an oscilloscope for your circuit investigation and design problems. Housed in a new, compact Heathkit cabinet 6½" wide x 9½" high x 11¼" deep and weighs only 11 lbs. The professional appearance of the smart new charcoal grey panel and feather grey cabinet imparts a quality appearance far above the amazingly low kit price level.

**SWEEP GENERATOR:** The new Heath twin triode sweep generator provides frequency coverage from 15 to 100,000 cycles in four switch selected positions. Printed circuit construction assures uniform standardized wiring, resulting in positive, easily synchronized stable locked-in traces. Provisions for external or internal sync. and external or internal sweep. All coupling and bypass condensers used with this new Heathkit are the plastic molded sealed type with capacity values directly imprinted for easy identification.

Tube line-up: four 12AU7 horizontal and vertical amplifiers. 12AX7 sweep generator, 6X4 low voltage rectifier, 1V2 high voltage rectifier, 3GP1 CRT.

**AMPLIFIERS:** Identical push-pull vertical and horizontal amplifiers are ideal for individual applications if phase shift is important. Sensitivity of vertical amplifier .25 volts per inch deflection, down 5 db at 500 kc. Horizontal amplifier .2 volts per inch at 1 kc, down 5 db at 500 kc. Deflection plate terminals at rear of cabinet. Ideal for ham transmitter modulation monitoring. Power supply is transformer operated to insure an adequate source of smooth, well-filtered DC and high level accelerating potential for the CR tube.

The New Heathkit OL-1 represents the lowest priced kit oscilloscope ever offered. A terrific value at \$29.50.



MODEL OL-1

**\$29<sup>50</sup>**

Shpg. Wt. 15 lbs.

**YOU SAVE BY ORDERING DIRECT FROM MANUFACTURER**



# New RELEASES

## Heathkit DIRECT READING CAPACITY METER KIT

**BRAND NEW:** Another outstanding addition to the rapidly expanding line of Heathkit instruments is the Model CM-1. This instrument features a large  $4\frac{1}{2}$ " 50 microampere meter with direct reading linear scales from 100 mmfd to .1 mfd. Necessary only to connect a capacitor of unknown value to the insulated binding posts and select the correct range. Capacity value is then read directly on the calibrated scale. Is not susceptible to hand-capacity effects and has a residual capacity of less than 1 mmfd.

Uses a 6X5 rectifier along with an OA2 voltage regulator to compensate for line voltage variations. A 6BX7GT is used as a multivibrator and generates the pulses necessary for circuit operation. Individual calibrating potentiometers provided for full scale adjustment on each range, and calibration capacitors of high accuracy are furnished. Once the ranges are calibrated, the potentiometers seldom require readjustment.

**UNIVERSAL APPLICATION:** This instrument is perfect for servicemen, and is especially valuable for quality control, production line spot checking, for making up special capacity values, or matching pairs. Ideal, also, for audio engineers, research laboratories, experimenters, amateurs and hobbyists. Will instantly indicate capacity of variable condensers, and follow the capacity change that takes place as the condenser shaft is rotated. Just imagine the applications this instrument has in tuned circuit work!

Fast, accurate, dependable capacity measurements are assured with the Heathkit Model CM-1 Direct Reading Capacity Meter.



MODEL CM-1

**\$29<sup>50</sup>**

Shpg. Wt. 7 lbs.

## NEW Heathkit AUDIO ANALYZER KIT



MODEL AA-1

**\$59<sup>50</sup>**

Shpg. Wt. 13 lbs.

**THREE INSTRUMENTS IN ONE:** The Model AA-1 has been designed specifically for the audio field, in keeping with the increasing popularity of high fidelity equipment. Because of the high performance expected of high fidelity units, some convenient means of obtaining performance data became necessary. There are many separate instruments available to check specific circuit functions, but only the AA-1 provides this comprehensive combination of measurement functions in one single instrument at such a low price.

Consists of an audio wattmeter with 7 power ranges from 0-.15 milliwatts to 50 watts full scale. DB ranges total -40 to +50 db. Built-in load resistors of 4, 8, 16 and 600 ohms which can be switch-selected for either external or internal use. Highly sensitive AC vacuum tube voltmeter circuit provides 10 voltage ranges from .01 volts rms to 300 volts rms full scale (300,000 to 1 ratio). One megohm input impedance at 1 kc. Precision resistors used in input divider circuit. Also included is a complete intermodulation analyzer with self-contained signal generators, providing frequencies of 60 cps and 6,000 cps with full scale direct reading analyzer ranges of 1%, 3%, 10%, 30% and 100%.

**EXCEPTIONAL VALUE:** Careful design engineering has resulted in this combination of circuits and functions permitting the use of a single power supply, a single pair of input terminals, one 200 microampere meter, and avoids duplication of precision resistors, etc. Total price for these three instruments separately was \$98.50. Through consolidation of functions, the Audio Analyzer Kit price has been established at \$59.50. A tremendous saving! The AA-1 presents a logical combination of instruments providing all of the test information required for analyzing amplifiers or audio equipment. Will quickly measure power output, select correct load impedance, indicate noise level, provide IM check and permit stage-by-stage IM analysis. A real necessity for the serviceman who now realizes that high fidelity equipment can no longer be excluded from his range of operation. Ideal, also, for all audio men, whether they be hobbyists and experimenters or professional engineers concerned with more elaborate equipment.

## About OUR New CAPACITY METER . . .

The measurement of capacity is ordinarily accomplished with a bridge of some sort. While this gives good results, it is often time-consuming and inconvenient. A direct reading capacity meter, on the other hand, meets the requirement for convenient, rapid and fairly accurate capacity measurement. The unknown capacity is connected to the terminals of the meter, and the value is read directly on the scale of the meter. This is especially useful when a number of capacitors are to be measured in succession, or rapidly compared to one another. It is not necessary to balance a bridge each time. The range of variable capacitors may be quickly determined also.

One of the various methods used for making direct capacitance measurements is to employ a pulse generator. A square-sided pulse is rectified and the impedance of the meter circuit, together with the unknown capacity, determines the shape and consequently the average value of the rectified voltage which is read on a meter.

Some of the design factors necessarily considered to accomplish this are: steep-sided pulse must be used to permit the measurement of small capacities; the pulse source must be a low impedance so the impedance of the measuring device will have little effect; the pulse repetition rate should be such that, at maximum deflection of the meter at any range, the wave form of the rectified pulse will have decayed to zero during the interval between pulses. This is essential in order to maintain linearity of reading throughout the full range of the instrument. The Heathkit Model CM-1 Capacity Meter meets these requirements.

The power supply, consisting of a transformer, 6X5GT rectifier tube and an OA2 voltage regulator tube, provides stable operating voltage. A 6BX7GT tube is used in a cathode coupled multivibrator circuit for pulse generation. A 100 ohm cathode resistor provides the common impedance necessary to maintain oscillation, and is also the pulse source impedance. The range switch selects the value of feedback capacitor and calibrating potentiometer. These values determine the PRR and, therefore, the maximum capacitance which may be read on a particular range. A crystal diode connects from the grid to ground and causes the pulses appearing across the grid to have a flat top, which is essential to satisfactory operation. Another crystal diode is used as a shunt rectifier across the meter. The impedance of the meter circuit is sufficiently high so that meter loading of the source is negligible.

A low value of grid resistor is used. This is desirable, especially on the low capacitance ranges, so that the back resistance of the clamp diode does not become the determining value of resistance.

The pulse height required for satisfactory operation of the meter demands a tube capable of supplying relatively large power. The 6BX7GT is used for this reason.

A separate calibrating potentiometer is used for each range to provide individual calibration and eliminate errors due to decading resistors in the range circuit.

OUR EVER-EXPANDING LINE IS YOUR ASSURANCE OF MODERN EQUIPMENT

# New PRINTED CIRCUIT HEATHKIT Vacuum Tube VOLTMETER KIT

- ▶ New charcoal grey baked enamel panel with highly readable white lettering. New soft feather grey cabinet — subdued pilot light indicator.
- ▶ New easy-to-read open panel layout. Off-on switch incorporated in selector switch action.

- ▶ New printed circuit board for faster, easier construction — exact duplication of laboratory development model.
- ▶ New peak-to-peak meter scales, new color harmony and styling, new control knobs.

Another outstanding example of continuing Heath Company pioneering and leadership in the kit instrument field. A new printed circuit VTVM, new peak-to-peak circuit, new styling and new panel design. A pre-wired pre-fabricated printed circuit board eliminates chassis wiring, cuts assembly time in half, assures duplication of engineering pilot model specifications and virtually eliminates possibility of construction error.

**CIRCUIT AND RANGES:** A 6AL5 tube operated as a full wave AC input rectifier permits seven peak-to-peak voltage ranges with upper limits to 4,000 volts. Just the ticket for you TV service men. Voltage divider in the 6AL5 input circuit limits applied AC input to a safe level. This circuitry and isolation of the meter in the cathode of the 12AU7 bridge circuit affords a high degree of protection for the sensitive 200 microampere meter.

Seven voltage ranges, 1.5, 5, 15, 50, 150, 500 and 1,500 volts DC and AC RMS. Peak-to-peak ranges, 4, 14, 40, 140, 400, 1,400, 4,000. Ohmmeter ranges, X1, X10, X100, X1,000, X10K, X100K, X1 meg. Additional features are a db scale, a center scale zero position and a polarity reversal switch.

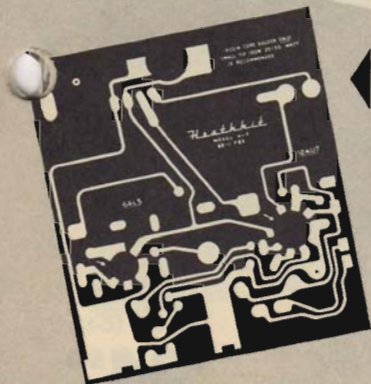
**IMPORTANT FEATURES:** High impedance 11 megohm input—transformer operated—1% precision resistors—6AL5 and 12AU7 tubes—selenium power rectifier—individual AC and DC calibrations—smoother improved zero adjust action—new panel styling and color—new placement of pilot light—new positive contact battery mounting—new knobs, test leads included. The pleasing eye-catching modern styling is in harmonious balance with the outstanding circuit design improvements. Easily your best buy in kit instruments.



MODEL V-7

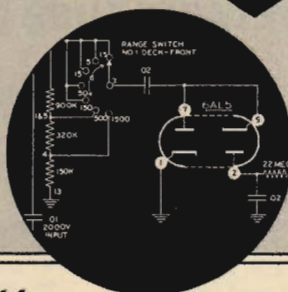
**\$24<sup>50</sup>**

Shpg. Wt. 7 lbs.



The first kit instrument to offer a labor saving, error free printed circuit board. Your instrument is an exact wiring replica of the engineering development model. Circuit board affords high insulation surface which permits closer mounting of components than ordinarily could be tolerated in conventional chassis construction. Definitely establishes new standards of kit instrument construction simplification.

Full wave rectifier in AC input circuit reads peak-to-peak and RMS volts with upper voltage limit of 4,000 volts peak-to-peak and 1,500 volts RMS. Precision resistor voltage divider input circuit.



## Heathkit

### HANDITESTER KIT



MODEL M-1

**145.0**

Shpg. Wt. 3 lbs.

The Heathkit Model M-1 Handitester readily fulfills major requirements for a compact, portable, volt-ohm-milliammeter. The small size of the smooth, gleaming, molded bakelite case permits the instrument to be tucked into your coat pocket, tool box or glove compartment of your car. Always the "Handitester" for the simple repair job. Despite its compact size, the Handitester is packed with every desirable feature required in an instrument of this type.

**RANGES AND CIRCUITS:** AC or DC voltage ranges full scale, 10, 30, 300, 1,000 and 5,000 volts. Two convenient ohmmeter ranges, 0-3,000 ohms and 0-300,000 ohms. Two DC milliamperes ranges, 0-10 milliamperes and 0-100 milliamperes. The instrument uses a 400 microampere meter movement which is shunted with resistors to provide a uniform 1 milliamperes load on both AC and DC ranges. This design allows the use of but one set of 1% precision divider resistors on both AC and DC and provides a simplicity of switching. The small hearing aid type ohms adjust control furnishes the necessary zero adjust function on the ohmmeter range. The AC rectifier circuit uses a high quality Bradley rectifier in a dual half wave hook-up. Necessary test leads and battery are included in the price of this popular kit. Easily constructed from detailed step-by-step manual furnished with the kit.



### Heathkit RF PRINTED CIRCUIT PROBE KIT

No. 309-C  
**\$3.50**  
Shpg. Wt. 1 lb.

The Heathkit RF Probe will permit accurate measurement of RF voltages up to 250 mc with an accuracy of  $\pm 10\%$ . The limits are 30 volts AC and a DC level of 500 volts. Designed for any 11 megohm input VTVM. Modern styling, polished aluminum housing, polystyrene insulation and printed circuit board for easy assembly.

### Heathkit PEAK-TO-PEAK PRINTED CIRCUIT PROBE KIT



Peak-to-peak values not exceeding 80 volts at a DC level of not more than 600 volts can be read directly by using the 336-C probe with previous model Heathkit VTVM's or any VTVM with 11 megohm input resistance. Probe construction features a modern printed circuit board for easy assembly. Frequency range of 5 kc to 5 mc.

No. 338-C  
**\$5.50**  
Shpg. Wt. 2 lbs.

### Heathkit 30,000 VOLT DC HIGH VOLTAGE PROBE KIT



No. 336  
**\$4.50**  
Shpg. Wt. 1 lb.

Measure up to 30,000 volts DC with the Heathkit VTVM and the 336 high voltage probe. Precision resistor provides multiplication factor of 100. Can be used with any 11 megohm input VTVM. Housed in a polystyrene two color sleek plastic probe body for safety of operation.

WORLD'S LARGEST SELLING VTVM

# Heathkit TUBE CHECKER KIT



MODEL TC-2

**\$29.50**

Shpg. Wt. 12 lbs.

## PORTABLE CABINET

Portable Tube Checker case may be purchased separately for the TC-2, and will also fit the earlier Model TC-1 Tube Checkers. See description in portable tube checker advertisement on this page. Shipping weight 7 lbs. Cabinet No. 91-8. Worth every penny of the price. Only \$7.50.

**FEATURES:** One of the outstanding features of this instrument is the restyling. The front panel is finished in charcoal grey with white letters for readability and knobs have been redesigned and are feather grey to contrast with the panel. A professional instrument both in appearance and performance. The meter is a 4 1/2" Simpson model with 3-color face for simple "good" and "bad" indications. Close tolerance resistors are used in the critical test circuits.

The Model TC-2 is not difficult to construct, and is simple to operate with full and complete instructions furnished. An illuminated roll chart is provided so that the test data for various tubes is right at hand. The roll chart is revised from time to time to keep up with the new tubes being introduced on the market. The TC-2 will check all tubes commonly encountered in radio and television service work.

**DESCRIPTION:** The new Heathkit Model TC-2 uses a color coded cable harness for a neat, professional under-chassis appearance and for ease in assembly. Ten three-position lever switches are provided so that each tube element may be checked for "open" or "short" individually. The line adjust control makes it

possible to adjust the input to the instrument to off-set any variation in line voltage. A top cap lead is provided for testing vacuum tubes with grid caps or plate caps. A neon bulb indicates filament circuit continuity and also shows shorts between tube elements, while provision is made for checking pilot lamps with a contact-type test socket.

**DESIGN:** Tube test sockets are provided for 4, 5, 6 and 7 pin octal and loctal tubes, 7 and 9 pin miniature tubes, and the 5 pin Hytron tubes. Also a blank space is provided for future socket additions. With this tube checker the tubes are tested for quality, on the basis of total emission, and for open and shorted conditions which might affect tube operation. Fourteen different filament voltage values are provided by the special power transformer and rotary selector switch. The lever switch arrangement for each tube element is not only rapid and flexible, but insures the instrument against obsolescence, since this individual control makes it possible to adapt the tester to check new tubes as they are developed.

**EXCEPTIONAL BUY:** The Model TC-2 offers the radio and TV serviceman a big saving over the price of comparable commercial units—perhaps as much as fifty dollars! The usefulness of this tube checker is not limited to service shops either, because at this price the individual part-time serviceman or experimenter can afford to purchase his own tube checker. The Heathkit Tube Checker is an outstanding example of the unbelievable bargains that Heathkit Engineering makes possible.

## Heathkit TV PICTURE TUBE TEST ADAPTER



MODEL 355

**\$4.50**

Shpg. Wt. 1 lb.

The Heathkit TV Picture Tube Test Adapter is designed to be used with the Model TC-2 Tube Checker. Check for emission, shorts, etc., in TV picture tubes and thereby determine tube quality. Consists of 12-pin TV tube socket, 4 ft. cable, octal connector, and necessary technical data.

## Heathkit

## PORTABLE TUBE CHECKER KIT

The TC-2P is identical to the TC-2 except that it is housed in a rugged carrying case. This is a strikingly attractive and practical two-tone case finished in proxylin impregnated fabric—rich maroon color outside, and cool grey on the inside cover. The cover is detachable and the hardware is brass plated. Topped off with a sturdy plastic handle, this case imparts a real professional appearance to the instrument. Ideal for home service calls or any portable application. Only \$34.50.



MODEL TC-2P

**\$34.50**

Shpg. Wt. 14 lbs.

## New HEATHKIT COLORS



The Heath Company has completely restyled the instruments in its ever growing, quality line. There is no logical reason why electronic equipment, even though functional in nature, should not be made as attractive as possible. Appearance *does* make a difference, and we are sure you will agree with us when you see the "new-look" in Heathkits.

You will be impressed by the rich tone of the charcoal grey panel, and high definition white control identification on the panel. Readability is increased three fold

under subdued lighting conditions very often encountered in operation, especially when an oscilloscope is in use.

Re-designed knobs and cabinets are soft feather grey to complement the panel, and terminal posts are contrasting red and black to stand out against the smooth, two-toned background. The result is most pleasing. Real professional appearance is achieved through balanced color styling. We are quite proud of the "new-look," and feel sure you will be equally proud to own one of these modern, attractive kits. Just another example of the "extras" you look for in Heath Company instruments. Our name is your assurance of professional-quality equipment at a reasonable price.

EVEN PART-TIME SERVICEMEN CAN AFFORD HEATHKIT QUALITY

NEW *Heathkit*

# SIGNAL GENERATOR KIT

This instrument is "serviceman engineered" to fill the requirement for a reliable basic service instrument at moderate cost. Frequency coverage extends in 5 bands from 160 kc to 110 mc on fundamentals, and the dial is calibrated to 220 mc for useable harmonics of the fundamental frequencies. Pre-wound and pre-aligned coils make calibration unnecessary for service applications. Construction is simple and straight-forward, and the comprehensive construction book with step-by-step assembly procedure assures success. All parts are included in the kit ready for assembly. Build your own generator and save! A reliable signal generator should be among the first test instruments purchased by the part-time serviceman or beginning service shop operator. Essential for IF and RF alignment jobs, and indispensable as a signal source for AF and RF signal tracing to quickly locate the defective stage in the receiver under test. Pays for itself in a short period through the service time it saves.

The Heathkit Model SG-8 Signal Generator Kit provides a stable, modulated or unmodulated RF output of at least 100,000  $\mu$ v which can be controlled by both a continuously variable attenuator and a fixed step attenuator. Internal modulation is at a frequency of 400 cycles, or the unit can be externally modulated. AF output of 2-3 volts is also available for audio testing. Uses dual purpose 12AU7 as Colpitts oscillator and cathode follower for stable, isolated, low-impedance output, and type 6C4 tube for 400 cycle oscillator. Operation of the SG-8 Signal Generator is well within the frequency limits normally required for service work. Modern styling features high definition white letters on charcoal grey panel with re-designed control knobs. Modern, professional appearance and Heathkit engineering know-how combine to place this instrument in the "best buy" category. Only \$19.50 complete.



MODEL SG-8

**\$19.50**

Shpg. Wt. 8 lbs.

## *Heathkit* LABORATORY GENERATOR KIT



MODEL LG-1

**\$39.50**

Shpg. Wt. 16 lbs.

**APPLICATION:** The Heathkit Model LG-1 Laboratory Generator was designed for the professional service shop or laboratory, and is an instrument suitable for use in design

and development work as well as in servicing. It establishes a new standard of performance for kit instruments. Ideal for checking RF and IF stage gain, overall circuit sensitivity, demodulator performance, or selectivity. Such applications are possible because of the accurately calibrated 200 microampere panel meter which will read the output voltage in microvolts or the percent modulation. A real time-saver for otherwise difficult alignment and adjustment problems.

**DESCRIPTION:** The frequency range of this fine instrument is from 150 kc to 30 megacycles—all on fundamentals, and divided into 5 easy-to-read calibration bands. The metered output is in excess of 100,000 microvolts, and both fixed step and variable output attenuation are possible. Circuit operation is stabilized by copper-plated double shielding, plus voltage regulation in the power supply. A flexible instrument, the LG-1 has provision for internal modulation or external modulation, and uses a Colpitts RF oscillator followed by an amplifier which is grid-modulated by the Colpitts AF oscillator and cathode follower circuits. Quality components are used throughout. The output is obtained at a coaxial cable terminating in a molded plastic "pod," provided with two binding posts for convenient connection right at the circuit under test.

**SPECIFICATIONS:** Modulation is variable from 0 to 50% and is at a frequency of 400 cycles internally, or can be modulated externally at a frequency from 60 cps to 10,000 cps. Tubes used are: 6AF4 RF oscillator, 6AV4 RF amplifier, 12AU7 AF oscillator and cathode follower. Frequency range: 150 kc to 30 megacycles on fundamental frequencies in 5 bands. Power required: 105-125 volts, 50-60 cycle AC. Besides real professional performance, this unit also features the new Heathkit styling. The panel is charcoal grey with sharp white lettering for maximum legibility. The new style knobs are a light, feather grey, as is the cabinet itself. Binding posts are contrasting red and black for real quality appearance in keeping with its quality performance.

**EXCEPTIONAL BUY:** Investigate the many dollar-saving features of the LG-1 before securing any generator for laboratory or service work. Only \$39.50 complete!

## NEW *Heathkit* BAR GENERATOR KIT

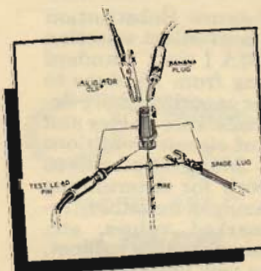
The lack of transmitted test patterns presents a problem to the TV serviceman when linearity adjustments must be made. This small, compact Bar Generator is the logical answer to this problem. Equally spaced horizontal or vertical bars can be observed without disturbing the internal circuit of the receiver under test. The Bar Generator is merely attached to the antenna terminals of the receiver.

The Model BG-1 produces a carrier frequency of 60 mc to 80 mc which can be modulated by a signal of 113 kc or 172 kc for vertical bars or 480 cps for horizontal bars. Operation is simple with the three-position panel switch marked "stand-by," "vertical," "horizontal." Sync. stability can be checked with this instrument also. Uses 12AT7 twin triode oscillator for RF and video signals, and neon relaxation oscillator for low frequency signals. Full instructions included, only \$14.50 complete.



MODEL BG-1

**\$14.50** Shpg. Wt. 6 lbs.



Kit No. 362-A **\$4.00**

Shpg. Wt. 1 lb.

*Heathkit*

## BINDING POST KIT

Modernize your test instruments. 20 complete binding post assemblies, (10 red—10 black) in kit. Will accommodate alligator clips, banana plugs, test lead pins, hook-up wire, and spade lugs. Sold only in kits of 20 binding posts, includes all necessary mounting hardware, flat and shoulder fibre washers, etc. 120 pieces in all. Binding Post Kit 362-A. Shipping weight 1 lb. Price \$4.00.

OUTSTANDING VALUES IN ELECTRONIC TEST EQUIPMENT

Heathkit

# TV ALIGNMENT GENERATOR KIT

**ELECTRONIC SWEEP:** The heart of the new Model TS-3 TV Alignment Generator Kit is a radical new improvement in the sweep circuit. A controllable inductor is used to achieve an all-electronic sweep system. The controllable inductor does away with the undesirable features of mechanical systems. There are no moving parts, and therefore vibration is virtually eliminated. Hum levels resulting from vibration are dispensed with and the controllable inductor produces a smooth, continuous sweep that is variable from zero to a maximum of 50 mc, depending on the base frequency. Electronic sweeping also offers the advantage of higher sweep rates than are normally practical in mechanical systems.

**ADVANCED DESIGN:** Latest high frequency techniques have been applied to this instrument in a new departure from conventional design. The result is a combination of performance features not to be found in any other sweep generator. The TS-3 provides sharp, automatic blanking, wide range phasing, and features a special automatic regulatory circuit to maintain constant RF output level. Copper plating and profuse shielding—plus line filtering, minimize external radiation except through the output cable. Servicemen cannot afford to be without this instrument for accurate TV alignment work. Easy to use, and essential to the efficient service shop. Pays for itself through the time it saves in only a short period.

**DESCRIPTION:** The Heathkit Model TS-3 is an accurate reliable test instrument which was designed especially to fill the needs of servicemen for a trouble-free sweep generator to use in tackling difficult TV alignment problems. The triple marker system is employed so that markers are obtainable from a 4.5 megacycle Pierce crystal oscillator, a variable oscillator, or an external marker. The crystal frequency, or multiples thereof, provide convenient check-points throughout the frequency range. The crystal is supplied with the kit, as are the shielded cables, so that the generator is complete in every respect. A reliable Colpitts sweep oscillator is employed and voltage regulation in the transformer-type power supply gives additional assurance of stable oscillator performance.

**SPECIFICATIONS:** Coverage of the Heathkit Model TS-3 extends from 4 mc to 220 mc on fundamental frequencies. The built-in variable marker generator covers the frequencies between 20 mc and 60 mc on fundamentals, and from 57 to 180 mc on calibrated harmonics. The 4.5 mc crystal controlled marker signal is available at its fundamental frequency and on the harmonics thereof.

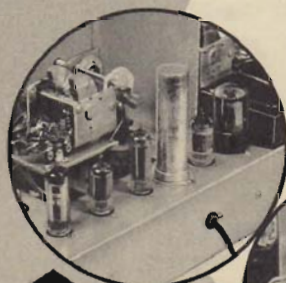
RF output is available at a level well over 100,000 microvolts. In addition, the output level is stabilized by an automatic regulating circuit. Tubes used are 12AT7 sweep oscillator and buffer, 12AT7 variable and crystal marker oscillator, 12AU7 blanking clipper, 6AQ5 series high voltage regulator, 6AU6 regulator control tube, and OA2 VR tube. The power supply uses a 6X5 rectifier and incorporates effective line filtering. For quality and performance at a rock-bottom price, the Heathkit TV Alignment Generator Kit cannot be beat.



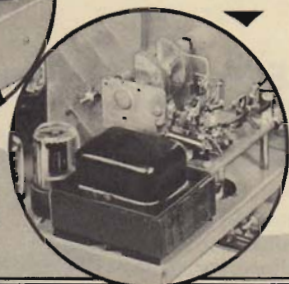
MODEL TS-3

**\$44.50** Shpg. Wt. 18 lbs.

**MARKER:** Fixed 4.5 mc crystal side band marker. Accurate calibration source for 20-60 mc variable marker. Marker output attenuation independent of sweep output. Marker signal available at panel terminal.



**OSCILLATOR:** "Unit" construction, compact sub-assembly. Sweep osc. and variable marker osc. built on phenolic base. All ground returns to variable capacitor frame.



Only \$44.50

## Heathkit CONDENSER SUBSTITUTION BOX KIT

The new Heathkit Condenser Substitution Box is the logical companion-unit for the Resistance Substitution Box. An 18-position panel switch provides individual selection of 18 RTMA standard condenser values ranging from .0001 mfd to .22 mfd. Capacitors rated at 600 volts with the exception of three highest values which are 400 volts. All condensers either silver-mica or plastic molded types. Numerous applications in all phases of electronics. Flexible and rapid selection of substitute values. 18" flexible leads with alligator clips included.



MODEL CS-1

**\$5.50**

Shpg. Wt. 2 lbs.

## Heathkit DECADE CONDENSER KIT

Use to determine capacitor values in compensating networks, tuned circuits, filters, etc. Ideal for technical school laboratories, industrial laboratories, or experimental lab of any type. Condensers are precision silver-mica type with rated accuracy of  $\pm 1\%$ . Values are arranged in three decades from 100 mmf to 0.111 mfd in steps of 100 mmf. Positive detent switches with ceramic wafers for reduced leakage. Many interesting design possibilities offered by this low cost, high quality kit. Special Heathkit universal-type binding posts used for rapid, convenient connection to circuit under test.



MODEL DC-1

**\$16.50**

Shpg. Wt. 4 lbs.

## Heathkit RESISTANCE SUBSTITUTION BOX KIT



MODEL RS-1

**\$5.50**

Shpg. Wt. 2 lbs.

The Heathkit Resistance Substitution Box provides quick, convenient selection of any one of 36 RTMA 1 watt standard 10% resistors, ranging from 15 ohms to 10 megohms. Ideal for experimentally determining desirable resistance values and for quick alteration of circuit conditions in laboratory work. Many applications in radio and TV work for determining proper values of damaged resistors, replacement for unmarked values, etc. Housed in an attractive bakelite cabinet, this unit features the new universal-type Heathkit binding posts. Entire kit is priced below retail value of resistors alone.

## Heathkit DECADE RESISTANCE KIT



MODEL DR-1

**\$19.50**

Shpg. Wt. 4 lbs.

The Heathkit Decade Resistance Kit is widely used by schools, experimenters, and laboratories because of the extremely wide resistance range covered, the rugged construction and the high degree of accuracy provided. Applications for a decade resistance are unlimited. Ideal for ohmmeter calibration, the selection of meter multipliers, the experimental determination of resistance values in electronic circuits or any similar application requiring selection of accurate resistance values. Twenty precision resistors are arranged to provide a resistance choice of 1 ohm to 99,999 ohms in 1 ohm steps.



# Heathkit VISUAL-AURAL SIGNAL TRACER KIT

This unit incorporates combinations of features never before found in one service instrument. Essentially it is a high-gain audio amplifier and can actually be used as such for checking tuners, phono pickups, microphones, etc. A high-sensitivity preamplifier stage is switched in for RF work, and the kit is complete with audio and RF demodulator-type probes.

Signals can be traced from the receiver antenna clear through the receiver circuit to the speaker. The relative signal strength is indicated clearly in the action of the tuning-eye tube and by the audio level at the signal tracer speaker, thereby permitting both visual and aural observation. Among the many features of the Model T-3 are a built-in wattmeter for preliminary check of power consumption, a noise locator to isolate noisy components without removing them from the circuit, dual channel inputs for high and low gain circuits, and convenient external binding posts for connection to the output transformer and speaker for test purposes. Panel terminals also provide a convenient, well-filtered B plus voltage supply for external circuit use. Supplied with shielded RF probe and lead, audio probe and lead, and two flexible panel test leads with alligator clips. Uses 12C8 amplifier and wattmeter rectifier, 12SH7 high gain pentode amplifier, 12A6 beam power amplifier, 1629 electron beam indicator, and 6X5 rectifier. Cabinet size: 9½" x 6½" x 5". Operates from 110-120 volts AC at 50-60 cps. The Heathkit Signal Tracer is truly a sensational kit and the type of instrument that you will use for many years. Only \$23.50 complete.



MODEL T-3  
**\$23.50**  
Shpg. Wt. 9 lbs.



## Heathkit CONDENSER CHECKER KIT

Here is a handy test instrument for any service shop. Unknown values of capacity and resistance are quickly determined on the direct reading scales of the Heathkit Condenser Checker. Capacity range is from .00001 mfd to 1,000 mfd in 4 ranges. Resistance values can be measured from 100 ohms to 5 megohms in 2 ranges. Various DC voltages available

for leakage tests on all types of condensers. Power factor may be determined for electrolytic condensers. Indication obtained on an electronic beam indicator tube. Panel scales easy to read. This kit is complete with construction manual, tests leads, and precision resistor for calibrating purposes. A valuable time-saver for service shop efficiency. Only \$19.50 complete.

MODEL C-3  
**\$19.50** Shpg. Wt. 7 lbs.

## Heathkit ELECTRONIC SWITCH KIT

The Heathkit Electronic Switch Kit, as the name implies, will electronically switch between 2 input signals to produce both signals alternately at the output. Used in conjunction with an oscilloscope, it will permit the observation of two signals simultaneously, either adjacent to each other or superimposed on each other. Ideal for such applications as observing the input and output of an amplifier circuit or pulse shaping circuit simultaneously. A valuable instrument for the research and development laboratory or for experimental work in the service shop. Also adaptable for use as a square wave generator in portions of the audio frequency range. A valuable instrument for only \$23.50 complete.



MODEL S-2  
**\$23.50** Shpg. Wt. 11 lbs.

## Heathkit VOLTAGE CALIBRATOR KIT

Peak-to-Peak voltage measurements are important in many TV and experimental circuits. After a simple calibration using an oscilloscope and a VTVM, the Model VC-2 Voltage Calibrator will accurately indicate peak-to-peak values from .01 to 100 volts without shifting of test leads.

In the "signal" position of the selector switch, the signal by-passes the voltage calibrator. In any other position, however, the voltage is compared to a known value for direct peak-to-peak reading. No calculations are required. This kit is very compact in design and is furnished complete with all parts necessary for operation and a comprehensive instruction manual for assembly. This is the type of instrument that must be used to be appreciated. A worthwhile addition to your assembly of service instruments.



MODEL VC-2  
**\$11.50**

Shpg. Wt. 4 lbs.

## Heathkit LOW CAPACITY PROBE KIT

An oscilloscope accessory that permits observation of complex TV wave forms with no danger of distortion. An adjustable terminal provides proper matching to any conventional scope input circuit. Excellent for high frequency, high impedance, or broad band-width circuits. The attenuation ratio can be varied if desired.



No. 342  
**\$3.50** Shpg. Wt. 1 lb.



MODEL 337-C  
**\$3.50**

Shpg. Wt. 1 lb.

## Heathkit SCOPE DEMODULATION PROBE KIT

Extend the usefulness of your oscilloscope by observing modulation envelope of RF or IF carriers found in TV and radio receivers. Among other uses, the Heathkit Demodulation Probe will be helpful in alignment work as a gain analyzer and signal tracer. Applied voltage limits are 30 volts rms and 500 volts DC. Uses printed circuit for simplified assembly, rugged construction and consistent performance.

# Heathkit AUDIO OSCILLATOR KIT

One of the outstanding features of the Heathkit Model AO-1 Audio Oscillator Kit is the new color styling. We are quite proud of the "new-look" in Heathkits, and feel sure you will be equally proud to own one of these modern, attractive, instruments. The panel is finished in rich charcoal grey with high definition white lettering. Good readability even under subdued lighting conditions. The redesigned control knobs are feather grey, as is the case itself.



MODEL AO-1

**\$24<sup>50</sup>** Shpg. Wt. 10 lbs.

The Model AO-1 is an ideal signal source for the investigation of all kinds of audio circuits. It will produce both sine and square waves at any frequency from 20 cps to 20 kc in three ranges. Thermistor controlled linearity results in a variation of no more than  $\pm 1$  db in the 10 volt (no-load) variable output level. There will be less than .6% distortion from 100 cps to the top of the audible range.

The square wave rise time of only 2 micro-seconds makes this instrument ideal for testing audio amplifiers by the square wave method. Another desirable feature is its low output impedance, (only 600 ohms). Precision 1% resistors are used in the range multiplier circuit to provide the most accurate calibration. When used with an oscilloscope, the Heathkit Audio Oscillator makes an excellent reference for frequency measurements and circuit observation.

# Heathkit AUDIO GENERATOR KIT

The Heathkit Model AG-8 is an audio generator with features generally found only in the most expensive instruments. It provides complete sine wave coverage from 20 cycles to 1 megacycle, and the response flat within  $\pm 1$  db from 20 cycles to 400 kc. The output can be attenuated by a fixed step control or by a continuously variable potentiometer.



MODEL AG-8

**\$29<sup>50</sup>** Shpg. Wt. 11 lbs.

Primary application of the Heathkit Model AG-8 is in the investigation and development of audio circuitry. With the recent interest in wide band amplifier characteristics, the AG-8 fills a serious gap in that it makes available known audio voltages over an extremely wide range of frequency and amplitude.

The output voltage of this instrument is relatively constant over a very wide frequency range, and the unit is, therefore, ideal for running frequency response curves in audio circuits. Once the output level has been set by the attenuator, it may be relied on for accuracy within  $\pm 1$  db.

The AG-8 has been re-styled to the "new-look" now evident in the other Heathkit instruments. Its rich professional appearance is in keeping with the professional performance of which it is capable.

An unbeatable dollar value, this audio generator will provide wide frequency coverage, excellent frequency response, high signal level, low impedance output, and low inherent distortion. Only \$29.50 complete.

## Heathkit

# "Q" METER KIT

The Heathkit Model QM-1 represents the first practical popular priced Q Meter on the market. This highly versatile instrument, formerly reserved for elaborate laboratories, is now priced so that it can be obtained by servicemen, radio amateurs, experimenters, etc. It is another outstanding example of successful Heathkit engineering effort. The Model QM-1 will enable the user to measure the performance of coils or condensers at the operating frequencies actually encountered. All indications of value are read directly on a large  $4\frac{1}{2}$ " 50 microampere Simpson calibrated meter scale. Will measure the Q of condensers, RF resistance and the distributed capacity of coils, etc. The stable oscillator section supplies RF frequencies of 150 kc to 18 mc in four ranges. The capacity measuring circuit, with a range of 40 mmfd to 450 mmfd will measure within  $\pm 3$  mmfd. Especially useful in TV service work for checking wave traps, chokes, peaking coils, etc. Also invaluable to the radio amateur for coil-winding, determining unknown variable condenser values, etc. Research laboratory facilities are now available to service shops, schools, and experimenters. An extra feature is the new Heathkit color-styling. An outstanding value at only \$44.50.



MODEL QM-1

**\$44<sup>50</sup>** Shpg. Wt. 14 lbs.

# Heathkit AC VACUUM TUBE VOLTMETER KIT

Extreme sensitivity has been emphasized in the design of the Heathkit AC VTVM. The full scale rms ranges are .01, .03, .1, .3, 1, 3, 10, 30, 100 and 300 volts. It is primarily intended for audio work, and the frequency response is substantially flat from 10 cps to 50 kc. With its input impedance of 1 megohm at 1 kc, the Model AV-2 will accurately measure as low as 1 millivolt at high impedance which is unusual, even for much more expensive devices. Total db range is  $-52$  db to  $+52$  db. An excellent kit for measuring the output of phono cartridges and the gain of amplifier stages. It also may be used to check power supply ripple, as a sensitive null detector, and for compiling frequency response data. Good linearity is insured through the use of a germanium diode meter bridge for the 200 microampere Simpson meter. The Model AV-2 features convenient one-knob operation, precision divider resistors, a well-filtered AC power supply, and the new color styling now characteristic of the Heathkit line. An instrument you will be proud to own for only \$29.50.



MODEL AV-2

**\$29<sup>50</sup>** Shpg. Wt. 5 lbs.

## SOME FACTS CONCERNING THE *New* HEATHKIT AUDIO ANALYZER (AA-1)

The model AA-1 logically combines the functions of an Intermodulation Analyzer, an Audio Wattmeter, and a High Sensitivity AC Voltmeter into one comprehensive instrument. The metering of watts, AC voltage and IM is accomplished with an unusual high gain amplifier in which a 12A17 tube is connected in a cascade-type circuit, allowing high gain to be achieved while substantially reducing residual noise.

Circuit characteristics of the Intermodulation Analyzer section remain basically unchanged from the original Heath Company instrument, employing a 12AX7 high-pass amplifier, and one-half of a 12AU7 as detector and driver for a low-pass LC IM products filter.

Power measuring circuits involve no extra tubes, since the AC voltmeter circuit is employed. Load resistances of 4, 8, 16 and 600 ohms at 24 watts (non-inductive) are provided and can be conveniently selected by a panel switch. Appropriate voltage correction is automatically selected at the same time, allowing power at any one of the above resistance values to be read directly on one scale.

Power is correlated to the voltage and DBM scale with a resistor between the output of the voltage correcting network and the VTVM decade switch. Two resistors in this decade are shorted-out to compensate for losses when the selector switch is placed in "Power" position.

Switching of function, load, and range is simple and straightforward. The internal load resistors are always available for all functions, and the instrument can be bridged across external loads for power measurements if desired. A high impedance position is provided also, allowing AC and IM measurements to be made in high impedance circuits. Input impedance is approximately 1 megohm when high Z measurements are made.

Instrument functions are determined by the function selector switch so that only one set of input terminals are necessary. Positions in clockwise order are: AC VOLTS; POWER; LOW FREQUENCY-HIGH FREQUENCY TEST; SET IM LEVEL; and IM. Correct ranges for all functions are marked on the range switch.

The low frequency signal is taken directly from one side of the power transformer high voltage secondary through an RC network to eliminate harmonics and reduce voltage to a level comparable to the high frequency oscillator, while a Colpitts-type oscillator with a 6C4 tube generates the high frequency. Panel connections are provided to allow frequencies other than those provided by the internal oscillator to be used for IM measurements.

One input is used for all functions, and one output is used as the signal source for most measurements.

### FREQUENCY RESPONSE

VTVM and Wattmeter.....	10 cps to 50 kc, $\pm 1$ db.
IM High-pass filter.....	2,000 cps to 12,000 cps.
IM Low-pass filter.....	10 cps to 600 cps.

### OPERATING LIMITS

VTVM (full scale).....	.01V (min.).....300V (max.)
Wattmeter (full scale).....	.15 MW (min.).....50W (Int.)
DBM.....	-40 db (min.).....+50 db. (max.)
IM Analyzer.....	.1% (min.).....100% (max.)

### INPUT IMPEDANCE

VTVM and IM Analyzer.....	1 megohm or 4, 8, 16 or 600 ohm.
Wattmeter.....	4, 8, 16 or 600 ohms with int. load.

### INTERNAL GENERATOR FREQUENCIES

Low.....	60 cps.
High.....	Approximately 6 kc.

### ACCURACY (full scale)

VTVM.....	5%
Wattmeter.....	5%
IM Analyzer.....	Within 10%.

# BRAND NEW *Heathkit* VARIABLE VOLTAGE REGULATED POWER SUPPLY KIT



MODEL PS-3

**\$35<sup>50</sup>** Shpg. Wt. 17 lbs.

**NEW STYLING:** The new Model PS-3 Power Supply features the "new-look" in Heathkits. The panel is rich charcoal grey with white lettering for readability even under subdued lighting conditions. Newly designed control knobs are feather grey in color to match the cabinet. The drawn aluminum panel fits neatly over the rounded corners of the new case. A most attractive instrument, and one that you will be proud to own.

**NEW MODEL:** The Heathkit Model PS-3 Variable Voltage Regulated Power Supply is a brand-new addition to the ever-expanding list of Heathkit quality instruments. The PS-3 features new circuitry and performance specifications, new panel and cabinet, new color styling, and newly designed control knobs and pilot lamp.

This instrument is ideal for laboratory or service shop applications. May be used as a variable supply to determine component values, to operate experimental circuits, or determine tube characteristics, etc. The new Model PS-3 furnishes DC voltage output which is continuously variable from 0 to 500 volts DC (no load, at a line voltage of 117 volts AC) and 6.3 V AC filament voltage at 4 amperes. The variable output is linear and is monitored for either voltage or current by a 4 1/2" Simpson meter with large, easy-to-read scale. The voltage regulation is excellent. Both the HV DC and LV AC outputs are isolated from the chassis so that it may be used for AC-DC work, or may be used in conjunction with another power supply to furnish a negative voltage value with respect to a test chassis. The ripple component in the output voltage is exceptionally low; only .04 volts at 250 DC output and 50 milliamperes load. This is a percentage of only .016%. **SPECIFICATIONS:** The output voltage is continuously variable from 0 to 500 volts under no-load conditions. The output is linear from 0 to 10 ma. at 450 volts, and 0 to 130 ma. at 200 volts, at a line voltage of 117 volts AC. Meter ranges: 0 to 500 volts and 0 to 200 ma. Tubes used: Two OA2 regulators, one 6SJ7 control amplifier, two 1619 control tubes, one 5V4 rectifier and a 6X5 rectifier. An excellent value at only \$35.50.

## *Heathkit*

### IMPEDANCE BRIDGE KIT

The new, improved Model Heathkit Impedance Bridge features built-in adjustable phase-shift oscillator and amplifier with all tubes of the battery-operated type to completely eliminate warm-up time. This instrument actually represents 4 units in one compact case. The Wheatstone bridge for resistance measurements; the Capacity Comparison bridge for capacity measurements; Maxwell bridge for low Q; and the Hay bridge for high Q measurements. Read Q, D, and DQ all on one dial, thereby eliminating possible confusion due to incorrect dial reference or adjustment. Only one set of instrument terminals necessary for any measurement function. Panel provisions for external generator use. A new, two-section CRL dial provides 10 separate "units" settings with an accuracy of .5%. Fractions of units are read on a continuously variable calibrated control. A special minimum capacity shielded and balanced impedance matching transformer between the generator and bridge circuit is automatically switched to provide correct load operation of the generator circuit. This instrument uses 1/2% precision resistors and condensers in all measurement circuits. It features, also, the brand new color styling and knob design as a Heathkit "extra." Only \$59.50 complete.



MODEL 1B-2

**\$59<sup>50</sup>** Shpg. Wt. 15 lbs.

## *Heathkit*

### BATTERY ELIMINATOR KIT

The new Model BE-4 Heathkit Battery Eliminator Kit is a combination 6-12 volt unit in line with the introduction of 12 volt automobile electrical systems to the market. A necessity in the auto radio service shop. Convenient panel switch is provided for selecting either 0 to 8 or 0 to 16 continuously variable voltage output. Output voltage and current are continuously monitored by individual panel-mounted meters. Maximum current range for 6 volt operation is 10 amperes continuous and 15 amperes intermittent. For 12 volt operation, the settings are 5 amperes continuous and 7.5 amperes intermittent. The output of this unit is well filtered by two 10,000 mfd condensers, and the transformer is protected by a fuse circuit and self re-setting overload relay. The heavy duty rectifier is an 18 plate unit for good heat dissipation. A real buy for the automobile serviceman at only \$31.50 complete.



MODEL BE-4

**\$31<sup>50</sup>** Shpg. Wt. 17 lbs.

## *Heathkit*

### VIBRATOR TESTER KIT

Vibrators are very often the source of trouble in auto radio receivers, whether the receiver is inoperative, or perhaps just noisy. Your repair time is valuable and the use of this Heathkit Vibrator Tester will save many hours of labor. The Model VT-1 will instantly tell you the condition of the vibrator under test, and in addition, the test is thorough and complete. Tests the vibrator for proper starting, and the easy-to-read meter indicates the quality of output on a large BAD-GOOD scale. Will test both interrupter and self-rectifier types of vibrators, and provides 5 different sockets for checking hundreds of vibrator types. Operates from any battery eliminator capable of delivering from 4-6 volts DC at 4 amperes. Ideal for use with the BE-4 Battery Eliminator described on this page. The kit is supplied complete, and can be quickly assembled to provide many years of time-saving service in your shop and only \$14.50 complete!



MODEL VT-1

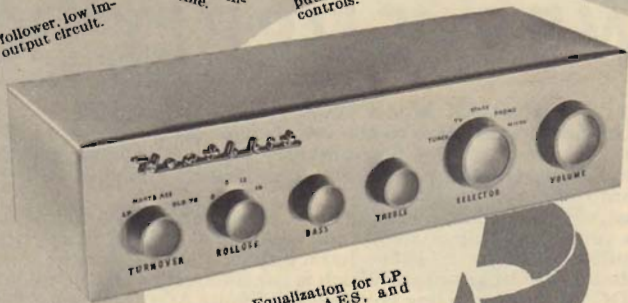
**\$14<sup>50</sup>** Shpg. Wt. 6 lbs.

SMARTLY STYLED — PROFESSIONAL APPEARANCE

Beautiful modern appearance blends with any interior color scheme.  
Cathode follower, low impedance output circuit.

Five switch selected inputs with individual level controls.

Separate bass and treble tone controls—special hum control.



Equalization for LP, RIAA, AES, and early 78.

MODEL WA-P2

**\$197.5**

Shpg. Wt. 7 lbs.

Power requirements from the Heathkit Williamson Type Amplifier power supply, 6.3 volts AC at 1 ampere, and 300 volts DC at 10 MA. Overall dimensions 12 $\frac{1}{16}$ " wide x 5 $\frac{1}{8}$ " deep x 3 $\frac{3}{8}$ " high. Uses two 12AX7 and one 12AU7 tubes.

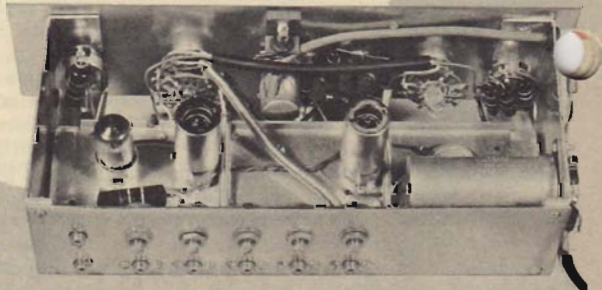
**APPLICATIONS:** The Heathkit Preamplifier will accommodate a record changer or player, tape recorder, AM-FM tuner, TV receiver, or microphone. Five separate input circuits with individual preset level controls can be quickly selected with the front panel control. This input circuitry and full range flexibility compensation network, provides all of the versatility of operation that could be desired.

The new Heathkit WA-P2 has been designed to operate with any of the Heathkit Williamson Type Amplifiers previously supplied, and is directly interchangeable with the preceding Model WA-P1 Preamplifier unit. Order your kit today and enjoy completely smooth control over the operation of your Hi-Fi system. Obtain the exact tonal balance of bass and treble with the precise degree of equalization you want. Note that the design of the WA-P2 accommodates the newly established RIAA curve.

**QUALITY COMPONENTS — LOGICAL LAYOUT**

Prime consideration has been given to the construction technique used in this preamplifier unit. Note the logical arrangement of tubes and parts, the rubber shock mounting of the chassis and the liberal use of Spirashield in critical circuits. Desirability of component layout was arrived at only through critical laboratory comparisons, with a series of experimental models. This clearly emphasizes the point that the Heathkit WA-P2 has been carefully pre-engineered for you, thereby insuring this specified high performance level.

**COMPONENTS:** All components have been carefully selected for their desirability in high quality, high gain amplifier circuits. Plastic molded tubular condensers, individually marked disc ceramics with values clearly stamped, instead of color coding, eliminates confusion occasionally encountered with ceramic color codes. Tubes used are of first line quality specified for this application. Good shielding practice is observed throughout. The cabinet and sub-chassis are all aluminum and the overall appearance of the completed preamplifier is outstandingly impressive.



**NEW Heathkit HIGH FIDELITY PREAMPLIFIER KIT**

Here is the exciting new Heathkit Preamplifier with all of the features you audiophiles have asked for and at a down-to-earth price level. Beautiful satin gold baked enamel finish, striking control knobs and arrangement, attractive custom appearance and entirely functional design. The cabinet styling will harmonize with any room interior decoration pattern. You can be proud to display this unit in your home and show it to your friends.

**DESIGN:** The WA-P2 Preamplifier uses three twin triode tubes in a shock mounted chassis. Features tube shielding, plastic sealed capacitors, smooth acting controls, good filtering, excellent decoupling, low hum and noise level and all aluminum cabinet. Special balancing control for absolute minimum hum level. Cathode follower low impedance output circuit for complete installation flexibility. Ideally suited for "remote" installation as output lead length is not critical.

**SPECIFICATIONS:** Provides five switch selected inputs, three high level and two low level, each with individual level controls—4 position LP, RIAA, AES and early 78 equalization switch—4 position roll-off switch, 8, 12, 16, with one flat position. Separate tone controls, bass 18 db boost and 12 db cut at 50 cps. Treble 15 db boost and 20 db cut at 15,000 cps.

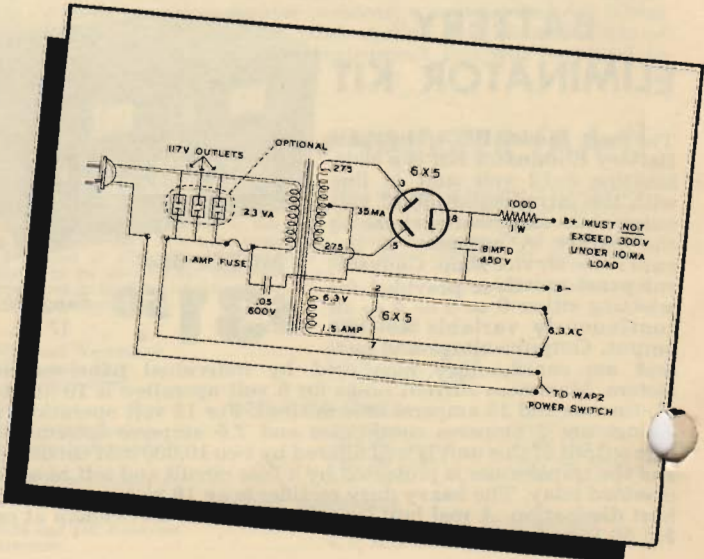
**WA-P2 PREAMPLIFIER**

**POWER SUPPLY CIRCUIT**

It has been our experience that many purchasers of the Heathkit WA-P2 use the unit with audio equipment other than Heathkit amplifiers. In many instances, they have asked for a suitable power supply unit that might be used with the WA-P2.

The Heath Company Engineering Department has given the matter consideration, and a suitable power supply schematic is published on this page. This schematic has been tested and its performance verified. Obviously the exact component values are not too critical, and some deviation is permissible. The power supply can be built with a suitable octal socket connector for the WA-P2 power supply plug. Preamplifier power requirements are conservative and the supply system used should be capable of furnishing 300 volts D.C. at 10 MA, and 6.3 volts A.C. at 1 ampere.

It must be emphasized that this power supply unit is not available as a Heathkit, nor can the Heath Company supply the parts required. If your application for the WA-P2 indicates a separate power supply unit, the necessary components should be purchased from your local supplier or parts jobber. This schematic information is given as a customer service only. Please do not write in requesting a power supply kit for the WA-P2.



**KIT CONSTRUCTION IS FASCINATING AND ENJOYABLE**

# New LOW PRICED Heathkit SINGLE UNIT WILLIAMSON TYPE High Fidelity AMPLIFIER KIT

Here is the newest Heathkit Hi-Fi Amplifier at the lowest price ever quoted for a complete Williamson Type Amplifier circuit. The W-4 Model has been designed for single chassis construction, and only for the new Chicago Transformer Company Model BO-13 "super-range" high fidelity output transformer. This transformer is one of the newest developments in the Hi-Fi field and is being offered at a substantial saving over transformers of comparable quality. It is outstanding in performance and on the basis of our tests, we find it equal to the transformers used in other Heathkit Williamson Type Amplifiers.

**LOW PRICE:** Through utilization of a single chassis with resultant economy obtained because of elimination of duplicate sheet metal fabrication, connecting cables, plugs, sockets, and with the new Chicago "super-range" output transformer, a 20% price reduction has been made possible without sacrificing kit quality.

**COMPONENTS:** The new Heathkit W-4 uses the same heavy duty power transformer and choke used in earlier models. It has all of the features of previous models including individual jacks and a wire wound control to balance the output tubes—plastic high quality capacitors and the exact circuitry utilized in Williamson Type Amplifiers. Intermodulation distortion and harmonic distortion are both at the same low level as the W-3 Model.

**CONSTRUCTION:** Here is the opportunity for even the economy minded Hi-Fi enthusiast to enjoy all of the advantages offered through Hi-Fi reproduction of fine recorded music. Simplified step-by-step construction manual completely eliminates necessity of electronic knowledge or special equipment. Assemble this amplifier in a few pleasant hours.

Send for free booklet "High Fidelity Especially For You."

Output impedances 4, 8 and 16 ohms.

Rugged heavy-duty single chassis construction.



## COMBINATIONS

W-4M with Chicago "super-range" transformer only. Single chassis main amplifier and power supply. Shpg. wt. 28 lbs. Express only.... **\$39<sup>75</sup>**

COMBINATION W-4 with Chicago "super-range" transformer only includes single chassis main amplifier and power supply with WA-P2 preamplifier kit. Shpg. wt. 35 lbs. Express only.... **\$59<sup>50</sup>**

## Heathkit 6 WATT AMPLIFIER KIT

MODEL A-7B

**\$15<sup>50</sup>** Shpg. Wt. 10 lbs.



An outstanding value, this economically priced 6 watt amplifier is capable of performance expected only in much more expensive units. Ideal for a low-cost basic home amplifier installation since only 2 or 3 watts power output are ever used in normal home applications. Model A-7B will be more than adequate for this purpose.

**SPECIFICATIONS:** Two switch selected inputs are available for crystal and ceramic phono pickups, tuner, TV audio, tape recorder, and carbon type microphone. Model A-7B features separate bass and treble tone controls, push-pull balanced output stages, output impedances of 4, 8 and 15 ohms, and extremely wide frequency range  $\pm 1\frac{1}{2}$  db from 20 to 20,000 CPS. Negative feedback is used to assure minimum distortion and excellent frequency response characteristics. Not just a "souped up" AC-DC job.

**TUBE LINEUP:** 12J5 first amplifier—12SL7 second amplifier and phase splitter—two 12A6 beam power output—5Y3 rectifier—12SJ7 preamplifier (A-7C only). Dimensions: 11 $\frac{1}{4}$ " wide x 5 $\frac{3}{4}$ " high x 6 $\frac{1}{2}$ " deep. Power requirements: 110-125 volts AC, 50-60 cycles.

Full wave rectification, transformer operated power supply and good filtering, result in exceptionally low hum level. This circuitry eliminates many problems commonly encountered in AC-DC or universal type amplifiers.

**MODEL A-7C:** Provides a preamplifier stage and proper compensation for the variable reluctance cartridge and low level microphone. **\$17.50.**

## Heathkit 20 WATT High Fidelity AMPLIFIER KIT

In keeping with the progressive policy of the Heath Company, further improvement has been made in the already famous Heathkit High Fidelity 20 Watt Amplifier. Additional reserve power has been obtained by using a heavier power transformer. A new output transformer designed and manufactured especially for the Heath Company, now provides output impedances of 4, 8, 16 and 500 ohms. The harmonic distortion level will not exceed 1% at the rated output.

**FEATURES:** Outstanding features of the Heathkit 20 Watt Amplifier include frequency response of  $\pm 1$  db from 20 CPS to 20,000 CPS. Separate (boost and cut) bass and treble tone controls, four switch selected input jacks and a special hum balancing control. Flexibility is emphasized in the four separate input circuits and proper equalization for all input devices is provided. Preamplifier, tone control and phase-splitter circuits utilize miniature 9 pin twin triodes for noise level.

**TUBE LINEUP:** 12AX7 magnetic preamplifier and first audio amplifier—12AU7 two stage amplifier with tone controls—12AU7 voltage amplifier and phase-splitter—6L6 push-pull beam power output and 5U4 rectifier.

**CONSTRUCTION MANUAL:** Detailed step-by-step construction manual supplied complete with detailed drawings, illustrations, pictorials and schematics. Specialized knowledge of components or circuitry is not required. The amplifier can be successfully constructed by the most non-technical music lover. Investigate the pleasure and personal satisfaction of building your own amplifier and save money too!



MODEL A-9B

**\$35<sup>50</sup>** Shpg. Wt. 24 lbs.

## Heathkit WILLIAMSON TYPE "ULTRA-LINEAR" AMPLIFIER KIT

Here is the famous kit form Williamson Type High Fidelity Amplifier that has deservedly earned highest praise from every strata of Hi-Fi music lovers. Virtually distortionless, clean musical reproduction, full range frequency response and more than adequate power reserve.

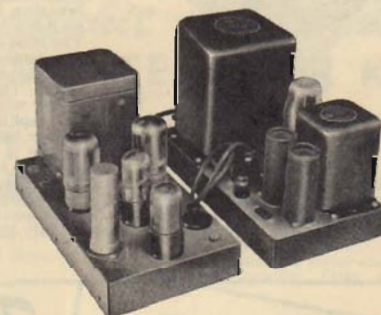
**OUTPUT TRANSFORMER:** This outstanding Williamson Type Amplifier is supplied with the famous Acrosound TO-300 output transformer. This quality transformer features the popular "ultra-linear" output circuit for clean maximum power level. Separate chassis for amplifier and power supply units.

**SPECIFICATIONS:** Frequency response within 1 db from 10 cycles to 100,000 cycles. Harmonic distortion at 5 watt output less than .5% between 20 cycles and 20,000 cycles. IM distortion at 5 watts equivalent

output .5% using 60 and 3,000 cycles. Output impedances of 4, 8 and 16 ohms. Overall dimensions for each unit 7" high x 5 $\frac{1}{2}$ " wide x 11 $\frac{1}{2}$ " long.

**CONSTRUCTION MANUAL:** This fine kit is supplied with a completely detailed step-by-step construction manual and the only effort required is the assembly and wiring of the pre-engineered kit. Even the complete novice can successfully construct this Amplifier and have fun building it.

**COMPLETE KIT:** This kit is complete with all tubes, parts, transformers, pre-fabricated and painted sheet metal parts and hook-up wire. Only basic assembly tools are required such as pliers, screw driver, soldering iron and diagonal cutters. Another outstanding Heath Company example of combining high quality top performance with low cost.



## COMBINATIONS AVAILABLE

W-3 Amplifier Kit (Includes Main Amplifier with Acrosound Output Transformer, Power Supply and WA-P2 Preamplifier). Shipping weight 37 lbs. Shipped express only.... **\$69<sup>50</sup>**

W-3M Amplifier Kit (Includes Main Amplifier with Acrosound Output Transformer and Power Supply). Shipping weight 29 lbs. Express only.... **\$49<sup>75</sup>**

STARTLING REALISM OF MUSICAL REPRODUCTION

# Heathkit COMMUNICATIONS RECEIVER KIT

Designed for extreme sensitivity and selectivity required in communications work.

Continuous frequency coverage from 550 Kc to 35 Mc in four bands.

Slide-rule dial—directly calibrated—ham bands marked—electrical bandsread—log scale.

Separate RF gain and AF gain controls for flexibility of operation.

Transformer operated power supply for safety and higher efficiency.

Separate beat frequency oscillator for sharp-toned C. W. reception. Built-in noise limiter.

**OUTSTANDING VALUE:** One of our most popular kits. This fine receiver is planned for simplified construction and easy operation. It is an attractive and desirable piece of equipment for radio amateurs, whether they be beginners or old timers—for short wave listeners, individuals interested in foreign broadcasts, or anyone whose listening interest extends beyond the standard broadcast band. May be used to pick up police or fire calls, and covers the amateur bands from 160 meters to 10 meters. Offers the quality advantages of much more expensive sets—without the usual disadvantages of so-called "economy" receivers. High quality parts and components used throughout for dependable performance. Ideal companion unit for the Heathkit Model AT-1 Transmitter, or makes a fine starting point for the individual just becoming interested in communications work.

**DESIGN:** Continuous frequency coverage is afforded from 550 Kc to 35 Mc in four bands by this stable, high gain receiver. Designed for extreme sensitivity and selectivity, the set features a transformer operated power supply for safety, and for high efficiency operation. Heathkit sound engineering has made possible pre-wound coils to fit in the compact, shielded turret assembly, miniature tubes and IF transformers, and many other features not normally expected for a unit in this price range. The 5 1/4" PM speaker is chassis mounted, and a headphone jack is provided for communications service. Noise limiter available at the flick of a switch to reduce interference and "crashing."

**DESCRIPTION:** The Heathkit Model AR-2 Communications Receiver uses a smooth operating slide-rule dial to cover its frequency range from 550 Kc to 35 Mc. The ham bands are clearly marked for easy identification on the directly-calibrated dial face. Electrical bandsread is provided, along with a log scale for fine frequency notations. A direct planetary drive provides the necessary reduction ratio for smooth tuning. The receiver features separate RF and AF gain control, AGC, a phone-CW-standby switch, and a separate BFO for sharp, clear CW reception. All controls are arranged for convenient operation and functional relationship to circuit. Chassis layout accomplished with the kit builder in mind. Construction manual contains clear, easy-to-follow directions for step-by-step assembly, parts identification, etc. Complete pictorial and schematic diagrams to insure against errors. Anyone who can follow these simple directions can build this kit.



MODEL AR-2

**\$25<sup>50</sup>**

Shpg. Wt. 12 lbs.  
(Less Cab.)

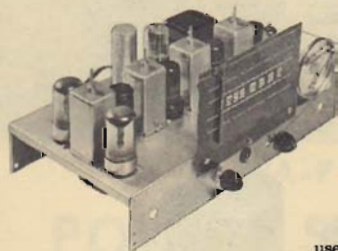
**SPECIFICATIONS:** Heathkit Model AR-2, frequency range—550 Kc to 35 Mc (4 bands). Tube Complement—12BE6 mixer-oscillator, 12BA6 IF amplifier, 12AV6 detector and first audio amplifier, 12A6 beam power amplifier, 12BA6 beat frequency oscillator, and 5Y3 rectifier. A lettered metal control plate furnished for installation in cabinet of your choice or design, or cabinet available from the Heath Company for small additional charge, and which provides full size aluminum panel. This receiver is an outstanding example of how the Heath Company can provide both top notch design and outstanding performance, and at the same time maintain its bargain price level. If you have been wanting a Communications Receiver, but felt you could not afford it, here is your opportunity! Only \$25.50 complete, (less cabinet). See cabinet advertisement on this page.

## Heathkit FM TUNER KIT

MODEL FM-2

**\$22<sup>50</sup>**

Shpg. Wt. 8 lbs.



High fidelity is increasing in popularity every day. The least expensive way to obtain a hi-fi signal source is to use a tuner. The Model FM-2 Tuner will operate through your hi-fi amplifier, or the phono plug on your radio. You save by constructing it yourself.

It has a slide rule dial, vernier tuning and its own AC power supply, eliminating the problems of AC-DC type circuits. Has separate mixer and oscillator, three IF stages, and carefully designed limiter and discriminator circuits for maximum sensitivity and selectivity from 88 to 108 Mc. Tuning unit is prealigned. Exceptional performance for only \$22.50.

### CABINETS

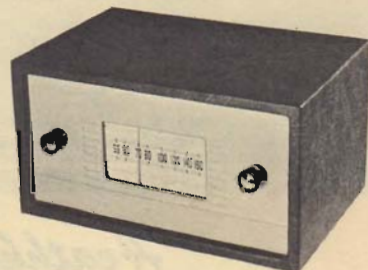
Proxylin impregnated fabric-covered plywood cabinet available for BR-2 and AR-2 receivers. Complete with aluminum panel, flocked reinforced speaker grille and protective rubber feet. Attractive and practical design. For BR-2 Receiver: 12 1/4" wide, 6 3/4" high, 7 3/4" deep. Shipping **\$4.50** weight 6 lbs. Part No. 91-9  
For AR-2 Receiver: 12 1/4" wide, 6 3/4" high, 7 3/4" deep. Shipping **\$4.50** weight 5 lbs. Part No. 91-10

## Heathkit BROADCAST BAND RECEIVER KIT . . .

MODEL BR-2

**\$17<sup>50</sup>**

Shpg. Wt. 10 lbs.  
(Less Cab.)



Here is the perfect kit for the beginner with little or no experience in electronics work. Build your own receiver with confidence. Comprehensive instruction book furnished. Simple, step-by-step instructions. Everything supplied. Circuit designed for stable operation and trouble-free performance. A "learn by doing" experience for the novice.

The Model BR-2 Broadcast Receiver offers such quality features as transformer-type power supply, high gain miniature tubes, build-in rod antenna for high sensitivity, sharply tuned 455 Kc miniature IF transformers, planetary tuning from 550 Kc to 1600 Kc, and 5 1/4" PM Speaker for tone quality not usually expected at this low price. Uses 12BE6 mixer-osc., 12BA6 IF amp., 12AV6 detector, 12A6 beam power output and 5Y3 rect. Only high quality components used for top performance. Use as AM receiver, AM tuner, or phono amplifier. A receiver you will be proud to own and show to your friends. Only \$17.50 (less cabinet).

## New KNOBS • PANELS • INDICATOR LIGHT FOR HEATHKIT INSTRUMENTS

Along with the latest balanced color styling, our Heathkit instruments now feature re-designed control knobs, drawn aluminum panels with rounded corners, and more attractive indicator lights.

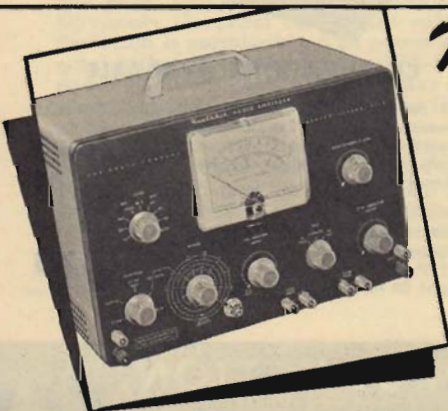
The new knobs are made of feather grey plastic material especially for the Heath Company. Designed to our own specifications, the knobs are fluted and skirted for maximum utility in operation. Because they are modern and functional, they blend exceptionally well with the overall appearance of the new 1955 Heathkits.

The charcoal grey color of the panels is high-lighted by the sharp white lettering for good visibility even under subdued lighting conditions. The panels are made of drawn aluminum, permitting the corners to be rounded

and the edge to be molded over the front of the streamlined cabinets. The result is a much more attractive appearance, and a more rugged cabinet-panel unit.

Panel indicators on the new instruments are different, also, and more in harmony with the clean lines we have been able to achieve. The jewel itself is frosted green and smooth, rather than faceted, resulting in a rich, professional appearance.

We are quite proud of the work we have done to modernize these equipments so that the overall appearance is now more in keeping with their modern performance. We feel sure you will be equally proud of their appearance on your service bench or in your laboratory.



**BRAND NEW**  
*Heathkit*

# VFO KIT

Whether you are an old-timer or a newcomer to amateur ranks, you can appreciate the problem faced by every ham when it comes to securing equipment. Commercial equipment is desirable—but may be expensive. On the other hand, home-made gear is more economical but involves such problems as sheet metal work, punching, bending, coil winding, etc.—and the prolonged and tedious job of “getting the bugs out” even after all the manual labor is completed.

The Heath Company now makes it possible for you to enjoy the good features of both alternatives. You can have commercially designed “trouble free” equipment at a price below what you would pay for separate components to build it yourself. You do your own assembly and save. The hard work is taken out with completely prepared metal work, mounting holes, tuning mechanism, etc. Everything you need is in the kit and ready for assembly and wiring. No guess work! Reliable operation is assured by Heathkit pre-engineering, and the comprehensive instruction book furnished with each kit.

The Model VF-1 is easy to build and easy to operate. Some of its features are: Illuminated and pre-calibrated frequency dial with over two feet of calibrated dial scale! Vernier reduction for smooth tuning, ceramic coil forms, tuning condenser insulation, and switch insulation. Quality components throughout. Copper-plated chassis, aluminum cabinet, and easy-to-reach adjustment for accurate calibration.

The Heathkit VFO Kit covers seven bands, from 160 meters through 10 meters with a 6AU6 Clapp oscillator. Over 10 volts of RF output is available, sufficient to drive any multistage transmitter of modern design. Coaxial cable used for RF output, terminated in a plastic plug to fit any 1/2" crystal socket. Voltage regulation provided by OA2 tube. Power required is only 6.3 volts at .45A. and 250 volts at 15MA. Perfect companion to the Heathkit Model AT-1 Transmitter. Will plug directly into transmitter power plug. Direct keying, right in the VFO, for a clean, sharp signal. Only \$19.50 complete with all components and simple step-by-step instruction manual.



MODEL VF-1

**\$19.50**

Shpg. Wt. 7 lbs.



MODEL AT-1

**\$29.50**

Shpg. Wt.  
16 lbs.

## Heathkit AMATEUR TRANSMITTER KIT

The Heathkit Model AT-1 Transmitter has passed the acid test of performance. There is no reason why you should not get on the air, as hundreds of others have done, with this fine piece of equipment. This kit includes all components necessary to build the transmitter, including tubes, cabinet, individual parts, etc. The chassis is pre-punched and ready for assembly, and a detailed construction manual is included with simple step-by-step instructions. Open design of circuit makes construction easy, even for the beginner. Can be used as a stand-by or all-band exciter rig later on.

Frequency range covers 80, 40, 10, 15, 11 and 10 meters with either crystal or VFO excitation. Up to 35 watts plate power input! Built-in power supply provides 425 volts at 100 milliamperes. Panel meter indicates either grid current or plate current for the final amplifier stage. RF coils are pre-wound, and RF output is brought out through a 52 ohm coaxial cable. Line filter is incorporated to minimize interference with adjacent broadcast receivers or TV sets. Profuse shielding used. Time-proven circuits are employed to insure reliable, trouble-free operation.

Crystal socket mounted directly on front panel. Key jack employed for CW operation, with a built-in key-click filter. Positive action stand-by switch. No coils to change when changing bands! Single knob band switch changes coils in oscillator and final circuits. Plug provided for connecting modulator to the transmitter, or for securing power for a VFO. Copper-plated chassis. Careful layout has resulted in rugged construction and stable circuit performance. Uses 6AG7 oscillator-multiplier, 6L6 power amplifier-doubler, and 5U4G rectifier. Only \$29.50 complete.



MODEL GD-1B

**\$19.50** Shpg. Wt.  
4 lbs.

## Heathkit GRID DIP METER KIT

Radio amateurs and servicemen have proven the value of this Grid Dip Meter many times over. Indispensable for locating parasitics, spurious oscillations, neutralizing, determining RF circuit resonant frequencies, and correcting TVI. Valuable in the service shop also for alignment of traps, filters, IF stages, peaking compensation net-works, etc. Can also be used to roughly determine capacitor and inductance values. The Model GD-1B covers from 2 mc to 250 mc with 5 pre-wound coils. Featuring a sensitive 500 microampere meter and phone jack, the GD-1B uses a 6AF4 or

6T4 tube. An essential tool for the radio amateur or serviceman, or a time-saving device in experimental laboratories. An exceptional buy at only \$19.50.

**ACCESSORIES:** The low frequency range of the Heathkit Grid Dip Meter is extended to 355 kc by the use of two additional coils. Complete with dial correlation curves. Set No. 341-A for GD-1B, and Set No. 341 for GD-1A. Shipping weight 1 lb. Only \$3.00.



MODEL AM-1

**\$14.50**

Shpg. Wt.  
3 lbs.

## Heathkit ANTENNA IMPEDANCE METER KIT

The AM-1 Antenna Impedance Meter kit is perfect for checking antenna and receiver impedance and match for optimum system operation. Use on transmission lines, half-wave, folded dipole, or beam antennas. Will double as monitor or relative field strength meter. Covers freq. range of 0 to 150 mc and impedance range of 0 to 600 ohms. Uses 100 micro-ampere meter and calibrated potentiometer. Only \$14.50 complete.

## Heathkit ANTENNA COUPLER KIT

This unit is designed especially for the Heathkit AC-1 Transmitter or any comparable amateur transmitter. It will handle power up to 75 watts at its 52 ohm coaxial input. Will match a wide range of antenna impedances with its “L” type tuning network and neon indicator. A tapped inductance provides coarse adjustment, while a variable condenser determines the fine setting. Special three-section low-pass filter cuts off at 36 mc. Designed for simple end-fed Hertz antenna and will operate on the 10 through 80 meter bands.



MODEL AC-1

**\$14.50** Shpg. Wt.  
3 lbs.

**“AMATEUR ENGINEERED” EQUIPMENT FOR THE HAM**

**HEATH company**  
BENTON HARBOR, MICHIGAN

precision electronic instruments in KIT form

Sec. 34.66 P. L. & R.

U. S. POSTAGE

**PAID**

Benton Harbor, Mich.

Permit No. 273

- ▶ 3" Portable Utility Scope Kit, \$29.50.  
Modern Printed Circuit Design.

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- ▶ 5" General Purpose Scope Kit, \$39.50.  
Full size—Printed Circuit.

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- ▶ 5" Color TV Service Scope Kit, \$69.50.  
Broad band, down only 1½ db @ 3.58 mc.

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- ▶ Direct Reading Capacity Meter Kit, \$29.50.  
Electronic Bridge Circuit with pulse generator.

---

- ▶ Audio Analyzer Kit—Combination Inst., \$59.50.  
Combination of 3 kit instruments—Low price!

---

- ▶ Regulated Variable Power Supply Kit, \$35.50.  
Continuously variable and regulated, 0-450 volts DC.

**New**  
1955

FORM 3547 REQUESTED

*Heathkit*

# MULTIMETER KIT...

**FOR YOU:** Your own personal multimeter, whether you be a serviceman, amateur, technician, or engineer. Designed for the broadest possible application in the electronics field. Equally valuable for close tolerance work in the laboratory, or quick checking at field or remote locations. "Serviceman Engineered" for convenient operation and functional design. Packed with desirable features.

**ADVANCED DESIGN:** Featuring a black bakelite molded cabinet and panel, the meter of the MM-1 is pre-assembled to the panel and sealed against dust. Easy to read and easy to operate, the modern styling is functional. Using a 4½" 50 microampere Simpson meter, the sensitivity of the MM-1 is 20,000 ohms-per-volt DC, and 5,000 ohms-per-volt AC. Convenient meter ranges make it possible to measure not only AC volts, DC volts, and ohms, but direct current as well. Current can be measured from 150 microamperes up to 15 amperes. Case design, control knob placement, and operating controls have been "bench tested" to insure rapid and convenient operation under laboratory and field conditions.

**OUTSTANDING VALUE:** The Heathkit Model MM-1 Multimeter Kit offers many quality features not normally expected at the price. The rich, expensive-looking molded bakelite case and panel are outstanding from the stand-point of appearance, while the 1% precision resistors used in the circuit insure quality operation also. The low voltage range, covering 1.5 volts over the full width of the two color scale, results in 2¼" of scale length per volt measured! In all, there are 35 useable meter ranges. No external power required for operation. Self-contained standard batteries are used for the ohmmeter. Ideal for outside service work or any portable application.

**SPECIAL FEATURES:** A polarity reversing switch is provided right on the front panel of this instrument. Test leads need not be reversed to measure negative DC voltage. A special resistor ring is used in conjunction with the selector switch assembly for rugged component mounting and ease of construction. The Model MM-1 is insensitive to RF fields as may be encountered around transmitters. Compact and rugged, the dust-proof case, with handle, is light in weight for complete portability.

**SPECIFICATIONS:** Full scale AC and DC voltage ranges are 1.5, 5,

20,000 ohms/volt DC and 5,000 ohms/volt AC sensitivity.

1% precision resistors used for maximum accuracy.

Resistor-ring on switch assembly for rugged component mounting and ease of construction.

Modern molded plastic design—attractive, rugged and functional.



MODEL MM-1

**\$26<sup>50</sup>**

Shpg. Wt.  
6 lbs.

50, 150, 500, 1,500, and 5,000. Direct current ranges are 150 microamperes, 15, 150, and 500 milliamperes, and 15 amperes. Resistances are measured from .2 ohms to 20 megohms in three ranges. The decibel range covers from -10 db to +65 db. The meter is a 4½", 50 microampere Simpson. 1% precision resistors used in multiplier circuits. Provision for "output" tests at the flick of a switch. Overall cabinet size is 5½" wide x 4" deep x 7½" high. Required batteries for ohmmeter circuit, and test leads furnished with kit. The MM-1 is proof that quality and economy can be combined through Heathkit engineering. Only \$26.50 complete.

Litho in U.S.A.

QUALITY INSTRUMENTS AT A PRICE YOU CAN AFFORD